Living (stained) deep-sea foraminifera off hachinohe (NE japan, western pacific): environmental interplay in oxygen-depleted ecosystems

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Résumé en anglais	Live (Rose-Bengal stained) deep-sea foraminiferal faunas have been studied at five stations between 500–2000-m depth along the NE Japanese margin (western Pacific) to understand how complex environmental conditions (e.g., oxygen depletion, organic matter) control their structure (i.e., diversity, standing stocks, and microhabitats). All stations are characterized by silty sediments with no evidence of recent physical disturbances. The three stations located between 760–1250 m are bathed by dysoxic bottom waters (<45 µmol/L). Although high organic-carbon contents are recorded at all stations (>2.2% DW), only the oxygen-depleted sites are characterized by higher concentrations of sugars, lipids, and enzymatically hydrolysable amino acids (EHAA). Sedimentary contents in chlorophyllic pigments decrease with water depth without any major change in their freshness (i.e., [Chl a/(Chl a + Pheo a)] ratios). Both Uvigerina akitaensis and Bolivina spissa are restricted to the stations bathed by dysoxic waters, proving their oxygen-depletion tolerance. In such conditions, both phytophagous taxa are obviously able to take advantage of labile organic compounds (e.g., lipids and EHAA) contained in phytodetritus. Nonionella stella and Rutherfordoides cornuta survive in oxygen-depleted environments probably via alternative metabolic pathways (e.g., denitrification ability) and a large flexibility in trophic requirements. At stations where oxygen availability is higher (i.e., >70 µmol/L in bottom water) and where bioavailable organic compounds are slightly less abundant, diversity indices remain low, and more competitive species (e.g., Uvigerina curticosta, U. cf. U. graciliformis, Nonionella globosa, Nonionellina labradorica, and Elphidium batialis) are dominant.
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